Re-Thinking Data Strategy and Integration for Artificial Intelligence: Concepts, Opportunities, and Challenges

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Abstract

The use of artificial intelligence (AI) is becoming more prevalent across industries such as healthcare, finance, and transportation. Artificial intelligence is based on the analysis of large datasets and requires a continuous supply of high-quality data. However, using data for AI is not without challenges. This paper comprehensively reviews and critically examines the challenges of using data for AI, including data quality, data volume, privacy and security, bias and fairness, interpretability and explainability, ethical concerns, and technical expertise and skills. This paper examines these challenges in detail and offers recommendations on how companies and organizations can address them. By understanding and addressing these challenges, organizations can harness the power of AI to make smarter decisions and gain competitive advantage in the digital age. It is expected, since this review article provides and discusses various strategies for data challenges for AI over the last decade, that it will be very helpful to the scientific research community to create new and novel ideas to rethink our approaches to data strategies for AI.